SEQUENCE LISTING

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<110> Gao, Zeren
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<151> 2001-07-05
<150> US 60/216,446
<151> 2000-07-06
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caggggcgag gggtctgccc cccttgggg ggycaggacg gggcctcagg cctgggtgct 180
gtccggcacc tggaag atg cct gtg tcc tgg ttc ctg ctg tcc ttg gca ctg 232
                  Met Pro Val Ser Trp Phe Leu Leu Ser Leu Ala Leu
ggc cga aac cct gtg gtc gtc tct ctg gag aga ctg atg gag cct cag
                                                                   280
Gly Arg Asn Pro Val Val Ser Leu Glu Arg Leu Met Glu Pro Gln
gac act gca cgc tgc tct cta ggc ctc tcc tgc cac ctc tgg gat ggt
                                                                   328
Asp Thr Ala Arg Cys Ser Leu Gly Leu Ser Cys His Leu Trp Asp Gly
gac gtg ctc tgc ctg cct gga agc ctc cag tct gcc cca ggc cct gtg
                                                                   376
Asp Val Leu Cys Leu Pro Gly Ser Leu Gln Ser Ala Pro Gly Pro Val
cta gtg cct acc cgc ctg cag acg gag ctg gtg ctg agg tgt cca cag
                                                                   424
Leu Val Pro Thr Arg Leu Gln Thr Glu Leu Val Leu Arg Cys Pro Gln
                                     70
aag aca gat tgc gcc ctc cgt gtc cgt gtg gtg gtc cac ttg gcc gtg
                                                                   472
Lys Thr Asp Cys Ala Leu Arg Val Arg Val Val His Leu Ala Val
cat ggg cac tgg gca gag cct gaa gaa gct gga aag tct gat tca gaa
His Gly His Trp Ala Glu Pro Glu Glu Ala Gly Lys Ser Asp Ser Glu
                            100
ctc cag gag tct agg aac gcc tct ctc cag gcc cag gtg gtg ctc tcc
                                                                   568
Leu Gln Glu Ser Arg Asn Ala Ser Leu Gln Ala Gln Val Val Leu Ser
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	cag					gcc		tgt Cys			ctg					616
								cag Gln								664
_	_			_	_			gct Ala 165		-	_					712
_	_				_			ctc Leu				_	_	_		760
_		_		_		_		ctg Leu	_	_				-	-	808
								cca Pro								856
_					_			cct Pro								904
	-	_	_		_		_	att Ile 245	_			_				952
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								tgt Cys								1096
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								aat Asn 325								1192
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								gct Ala								1288

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		_	_	_	_	_				-	ctg Leu		-		_	1432
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											gtg Val					1720
											cta Leu 520					1768
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					_		_	-		_	gcc Ala			_	_	1912
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											gtg Val 600					2008
											ctg Leu					2056

605	610	61	5	620
gat gca ctg cag gga Asp Ala Leu Gln Gly 625	Gly Cys Ser		a Gly Arg Pro A	
cgg gtg gaa cga gtg Arg Val Glu Arg Val 640	acc cag gcg Thr Gln Ala	ctg cgg tc Leu Arg Se 645	c gcc ctg gac a er Ala Leu Asp S 650	agc tgt 2152 Ser Cys
act tct agc tcg gaa Thr Ser Ser Ser Glu 655		Cys Cys Gl		
ccc tgc act aca cta Pro Cys Thr Thr Leu 670		cga tacagta	ttc ctaaaaaaaa	2248
aaaaaaa				2256
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Val Val Val Ser Leu 20	Glu Arg Leu	Met Glu Pr 25	o Gln Asp Thr A 30	Ala Arg
Cys Ser Leu Gly Leu 35	Ser Cys His	Leu Trp As	sp Gly Asp Val I 45	Leu Cys
Leu Pro Gly Ser Leu 50	Gln Ser Ala 55	Pro Gly Pr	o Val Leu Val F 60	Pro Thr
Arg Leu Gln Thr Glu		Arg Cys Pr	o Gln Lys Thr A	Asp Cys 80
Ala Leu Arg Val Arg	· -		a Val His Gly H	
Ala Glu Pro Glu Glu 100	Ala Gly Lys			- •
Arg Asn Ala Ser Leu 115	Gln Ala Gln 120	Val Val Le		Ala Tyr
Pro Ile Ala Arg Cys			n Val Pro Ala A	Asp Leu
Val Gln Pro Gly Gln	Ser Val Gly			
Ala Ser Leu Gly Ala			er Tyr Thr Lys F	
165 Tyr Gln Lys Glu Leu			eu Pro Asp Gly A	175 Asp Asn
Val Leu Leu Thr Leu 195	Asp Val Ser		190 n Asp Phe Ser F 205	Phe Leu
Leu Tyr Leu Arg Pro				lyr Lys
Asn Leu Thr Gly Pro	Gln Asn Ile		n His Thr Asp I	
Pro Cys Leu Cys Ile			u Pro Asp Ser G	
Val Glu Phe Cys Pro		. —	y Ala His Arg A	255 Asn Leu
260 Trp His Ile Ala Arg				Sln Leu
275	280		285	

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Asp Ala Pro Cys Cys Leu Pro Gly Lys Val Thr Leu Cys Trp Gln Ala
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                                            300
Pro Asp Gln Ser Pro Cys Gln Pro Leu Val Pro Pro Val Pro Gln Lys
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                                        315
Asn Ala Thr Val Asn Glu Pro Gln Asp Phe Gln Leu Val Ala Gly His
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                                    330
                                                         335
Pro Asn Leu Cys Val Gln Val Ser Thr Trp Glu Lys Val Gln Leu Gln
            340
                                345
Ala Cys Ser Trp Ala Asp Ser Leu Gly Pro Phe Lys Asp Asp Met Leu
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Leu Val Glu Met Lys Thr Gly Leu Asn Asn Thr Ser Val Cys Ala Leu
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                                            380
Glu Pro Ser Gly Cys Thr Pro Leu Pro Ser Met Ala Ser Thr Arg Ala
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                                        395
Ala Arg Leu Gly Glu Glu Leu Leu Gln Asp Phe Arg Ser His Gln Cys
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                                    410
                                                        415
Met Gln Leu Trp Asn Asp Asp Asn Met Gly Ser Leu Trp Ala Cys Pro
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                                425
Met Asp Lys Tyr Ile His Arg Arg Trp Val Leu Val Trp Leu Ala Cys
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                            440
                                                445
Leu Leu Leu Ala Ala Ala Leu Phe Phe Leu Leu Leu Lys Lys Asp
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Arg Arg Lys Ala Ala Arg Gly Ser Arg Thr Ala Leu Leu His Ser
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Ala Asp Gly Ala Gly Tyr Glu Arg Leu Val Gly Ala Leu Ala Ser Ala
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                                    490
Leu Ser Gln Met Pro Leu Arg Val Ala Val Asp Leu Trp Ser Arg Arg
           500
                                505
                                                    510
Glu Leu Ser Ala His Gly Ala Leu Ala Trp Phe His His Gln Arg Arg
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Arg Ile Leu Gln Glu Gly Gly Val Val Ile Leu Leu Phe Ser Pro Ala
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                                            540
Ala Val Ala Gln Cys Gln Gln Trp Leu Gln Leu Gln Thr Val Glu Pro
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                                        555
Gly Pro His Asp Ala Leu Ala Ala Trp Leu Ser Cys Val Leu Pro Asp
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                                    570
                                                        575
Phe Leu Gln Gly Arg Ala Thr Gly Arg Tyr Val Gly Val Tyr Phe Asp
                                585
                                                     590
Gly Leu Leu His Pro Asp Ser Val Pro Ser Pro Phe Arg Val Ala Pro
                            600
                                                605
Leu Phe Ser Leu Pro Thr Gln Leu Pro Ala Phe Leu Asp Ala Leu Gln
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                                            620
Gly Gly Cys Ser Thr Ser Ala Gly Arg Pro Ala Asp Arg Val Glu Arg
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                    630
                                        635
Val Thr Gln Ala Leu Arg Ser Ala Leu Asp Ser Cys Thr Ser Ser Ser
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Leu Glu
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<211> 2022 <212> DNA

<213> Artificial Sequence

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<223> Degenerate sequence encoding the polypeptide of SEQ ID NO:2.

<221> variation

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ytntgggayg gngaygtnyt ntgyytnccn ggnwsnytnc arwsngcncc nggnccngtn 180
ytngtnccna cnmgnytnca racngarytn gtnytnmgnt gyccncaraa racngaytgy 240
gcnytnmgng tnmgngtngt ngtncayytn gcngtncayg gncaytgggc ngarccngar 300
gargenggna arwsngayws ngarytnear garwsnmgna aygenwsnyt neargenear 360
gtngtnytnw snttycargc ntayccnath gcnmgntgyg cnytnytnga rgtncargtn 420
ccngcngayy tngtncarcc nggncarwsn gtnggnwsng cngtnttyga ytgyttygar 480
gcnwsnytng gngcngargt ncarathtgg wsntayacna arccnmgnta ycaraargar 540
ytnaayytna cncarcaryt nccngayggn gayaaygtny tnytnacnyt ngaygtnwsn 600
gargarcarg ayttywsntt yytnytntay ytnmgnccng tnccngaygc nytnaarwsn 660 ytntggtaya araayytnac nggnccncar aayathacny tnaaycayac ngayytngtn 720
ccntgyytnt gyathcargt ntggwsnytn garccngayw sngarmgngt ngarttytgy 780
centtymgng argayeengg ngeneaymgn aayytntgge ayathgenmg nytnmgngtn 840
ytnwsnccng gngtntggca rytngaygcn centgytgyy tneenggnaa rgtnacnytn 900
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aaygcnacng tnaaygarcc ncargaytty carytngtng cnggncaycc naayytntgy 1020
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ggnccnttya argaygayat gytnytngtn garatgaara cnggnytnaa yaayacnwsn 1140
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gcnmgnytng gngargaryt nytncargay ttymgnwsnc aycartgyat gcarytntgg 1260
aaygaygaya ayatgggnws nytntgggcn tgyccnatgg ayaartayat hcaymgnmgn 1320
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ytnaaraarg aymgnmgnaa rgcngcnmgn ggnwsnmgna cngcnytnyt nytncaywsn 1440
gcngayggng cnggntayga rmgnytngtn ggngcnytng cnwsngcnyt nwsncaratg 1500
ccnytnmgng tngcngtnga yytntggwsn mgnmgngary tnwsngcnca yggngcnytn 1560
gentggttye ayeayearmg nmgnmgnath ytneargarg gnggngtngt nathytnytn 1620
ttywsneeng engengtnge neartgycar cartggytne arytnearae ngtngareen 1680
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mgngcnacng gnmgntaygt nggngtntay ttygayggny tnytncaycc ngaywsngtn 1800
convencent tymgngtngc nccnytntty wsnytnccna cncarytncc ngcnttyytn 1860
gaygcnytnc arggnggntg ywsnacnwsn gcnggnmgnc cngcngaymg ngtngarmgn 1920
gtnacncarg cnytnmgnws ngcnytngay wsntgyacnw snwsnwsnga rgcnccnggn 1980
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caggggcgag gggtctgccc cccttgggg gggcaggacg gggcctcagg cctgggtgct 180
gtccggcacc tggaag atg cct gtg tcc tgg ttc ctg ctg tcc ttg gca ctg 232
                  Met Pro Val Ser Trp Phe Leu Leu Ser Leu Ala Leu
ggc cga aac cct gtg gtc gtc tct ctg gag aga ctg atg gag cct cag
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Gly Arg Asn Pro Val Val Val Ser Leu Glu Arg Leu Met Glu Pro Gln
         15
                              20
                                                  25
gac act gca cgc tgc tct cta ggc ctc tcc tgc cac ctc tgg gat ggt
                                                                    328
Asp Thr Ala Arg Cys Ser Leu Gly Leu Ser Cys His Leu Trp Asp Gly
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													-				1000		
				-				-				ctc Leu				-	1096		
												cta Leu					1144		
												gca Ala					1192		
												aag Lys					1240		
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·												ctg Leu					1384		
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		_	_		_		_			_	_	ccc Pro	_	_	_		1576		
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•																
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				ctg Leu												196
				tgg Trp												200
				cgc Arg												205
				ccc Pro 625												210
				ccg Pro												215
				cga Arg												220
				ctg Leu												224
				tgg Trp												22
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1 Val	Val	Val	Ser 20	5 Leu	Glu	Arg	Leu		10 Glu	Pro	Gln	Asp	Thr	15 Ala	Arg	
Суѕ	Ser	Leu 35		Leu	Ser	Cys	His 40	25 Leu	Trp	Asp	Gly	Asp 45		Leu	Cys	
Leu	Pro 50		Ser	Leu	Gln	Ser 55		Pro	Gly	Pro	Val 60		Val	Pro	Thr	
Arg 65		Gln	Thr	Glu	Leu 70		Leu	Arg	Cys	Pro 75		Lys	Thr	Asp	Cys 80	
	_		Val	3		77- 1	**- 7	***	-	. –			~ 1	***		

Ala Glu Pro Glu Glu Ala Gly Lys Ser Asp Ser Glu Leu Gln Glu Ser Arg Asn Ala Ser Leu Gln Ala Gln Val Val Leu Ser Phe Gln Ala Tyr Pro Ile Ala Arg Cys Ala Leu Leu Glu Val Gln Val Pro Ala Asp Leu Val Gln Pro Gly Gln Ser Val Gly Ser Ala Val Phe Asp Cys Phe Glu Ala Ser Leu Gly Ala Glu Val Gln Ile Trp Ser Tyr Thr Lys Pro Arg Tyr Gln Lys Glu Leu Asn Leu Thr Gln Gln Leu Pro Asp Cys Arg Gly Leu Glu Val Arg Asp Ser Ile Gln Ser Cys Trp Val Leu Pro Trp Leu Asn Val Ser Thr Asp Gly Asp Asn Val Leu Leu Thr Leu Asp Val Ser Glu Glu Gln Asp Phe Ser Phe Leu Leu Tyr Leu Arg Pro Val Pro Asp Ala Leu Lys Ser Leu Trp Tyr Lys Asn Leu Thr Gly Pro Gln Asn Ile Thr Leu Asn His Thr Asp Leu Val Pro Cys Leu Cys Ile Gln Val Trp Ser Leu Glu Pro Asp Ser Glu Arg Val Glu Phe Cys Pro Phe Arg Glu Asp Pro Gly Ala His Arg Asn Leu Trp His Ile Ala Arg Leu Arg Val 295 . Leu Ser Pro Gly Val Trp Gln Leu Asp Ala Pro Cys Cys Leu Pro Gly Lys Val Thr Leu Cys Trp Gln Ala Pro Asp Gln Ser Pro Cys Gln Pro Leu Val Pro Pro Val Pro Gln Lys Asn Ala Thr Val Asn Glu Pro Gln Asp Phe Gln Leu Val Ala Gly His Pro Asn Leu Cys Val Gln Val Ser Thr Trp Glu Lys Val Gln Leu Gln Ala Cys Ser Trp Ala Asp Ser Leu Gly Pro Phe Lys Asp Asp Met Leu Leu Val Glu Met Lys Thr Gly Leu Asn Asn Thr Ser Val Cys Ala Leu Glu Pro. Ser Gly Cys Thr Pro Leu Pro Ser Met Ala Ser Thr Arg Ala Ala Arg Leu Gly Glu Glu Leu Leu Gln Asp Phe Arg Ser His Gln Cys Met Gln Leu Trp Asn Asp Asp Asn Met Gly Ser Leu Trp Ala Cys Pro Met Asp Lys Tyr Ile His Arg Arg Trp Val Leu Val Trp Leu Ala Cys Leu Leu Leu Ala Ala Ala Leu Phe Phe Phe Leu Leu Lys Lys Asp Arg Arg Lys Ala Ala Arg Gly Ser Arg Thr Ala Leu Leu His Ser Ala Asp Gly Ala Gly Tyr Glu Arg Leu Val Gly Ala Leu Ala Ser Ala Leu Ser Gln Met Pro Leu Arg Val Ala Val Asp Leu Trp Ser Arg Arg Glu Leu Ser Ala His Gly Ala Leu Ala Trp Phe His His Gln Arg Arg Ile Leu Gln Glu Gly Gly Val Val Ile Leu Leu Phe Ser Pro Ala Ala Val Ala Gln Cys Gln Gln Trp Leu Gln Leu Gln Thr Val Glu Pro Gly Pro His Asp Ala Leu Ala Ala

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Arg Pro Ala Asp Arg Val Glu Arg Val Thr Gln Ala Leu Arg Ser Ala
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Trp Asp Leu Gly Pro Cys Thr Thr Leu Glu
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gcngaywsny tnggnccntt yaargaygay atgytnytng tngaratgaa racnggnytn 1200
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congenttyy tngaygonyt nearggnggn tgywsnacnw sngenggnmg neengengay 1980
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Cys Ser Pro Gly Leu Ser Cys Arg Leu Trp Asp Ser Asp Ile Leu Cys
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Leu Pro Gly Asp Ile Val Pro Ala Pro Gly Pro Val Leu Ala Pro Thr
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                                            60
His Leu Gln Thr Glu Leu Val Leu Arg Cys Gln Lys Glu Thr Asp Cys
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                    70
Asp Leu Cys Leu Arg Val Ala Val His Leu Ala Val His Gly His Trp
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                85
                                                         95
Glu Glu Pro Glu Asp Glu Glu Lys Phe Gly Gly Ala Ala Asp Ser Gly
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                                                     110
Val Glu Glu Pro Arg Asn Ala Ser Leu Gln Ala Gln Val Val Leu Ser
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                            120
                                                125
Phe Gln Ala Tyr Pro Thr Ala Arg Cys Val Leu Leu Glu Val Gln Val
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Pro Ala Ala Leu Val Gln Phe Gly Gln Ser Val Gly Ser Val Val Tyr
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                                        155
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Asp Cys Phe Glu Ala Ala Leu Gly Ser Glu Val Arg Ile Trp Ser Tyr
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                                    170
Thr Gln Pro Arg Tyr Glu Lys Glu Leu Asn His Thr Gln Gln Leu Pro
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                                                     190
Ala Leu Pro Trp Leu Asn Val Ser Ala Asp Gly Asp Asn Val His Leu
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                            200
                                                 205
Val Leu Asn Val Ser Glu Glu Gln His Phe Gly Leu Ser Leu Tyr Trp
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Asn Gln Val Gln Gly Pro Pro Lys Pro Arg Trp His Lys Asn Leu Thr
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Gly Pro Gln Ile Ile Thr Leu Asn His Thr Asp Leu Val Pro Cys Leu
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Cys Ile Gln Val Trp Pro Leu Glu Pro Asp Ser Val Arg Thr Asn Ile
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Cys Pro Phe Arg Glu Asp Pro Arg Ala His Gln Asn Leu Trp Gln Ala
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Cys Ser Leu Pro Ala Glu Ala Ala Leu Cys Trp Arg Ala Pro Gly Gly

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Val Asp Lys Val Leu Glu Phe Pro Leu Leu Lys Gly His Pro Asn Leu
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Trp Ala Asp Ser Leu Gly Pro Leu Lys Asp Asp Val Leu Leu Glu
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Thr Arg Gly Pro Gln Asp Asn Arg Ser Leu Cys Ala Leu Glu Pro Ser
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Ile His Lys Arg Trp Ala Leu Val Trp Leu Ala Cys Leu Leu Phe Ala
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Glu Gly Gly Val Val Leu Leu Phe Ser Pro Gly Ala Val Ala Leu
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Cys Ser Glu Trp Leu Gln Asp Gly Val Ser Gly Pro Gly Ala His Gly
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Thr Pro Ala Pro Gly Arg Gly Val Gly Pro Gly Ala Gly Pro Gly Ala
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Gly Asp Gly Thr
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